



# **introduction to google cloud and deep learning**

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# overview

- **google cloud intro**
- **colab, deep learning ami**
- **tpu: mnist demo, resnet**
- **buckets, quotas, python versions**
- **gcp tools, next steps**

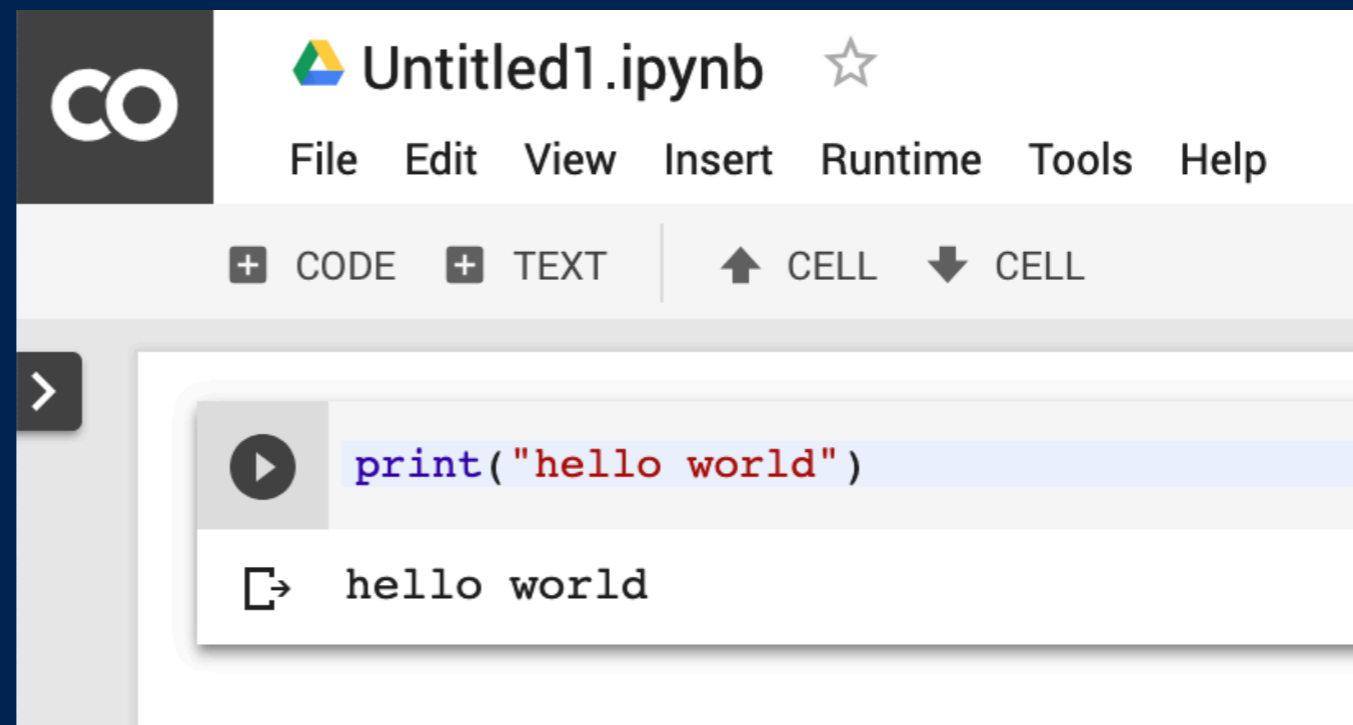


# google cloud platform

- **google's tools for building google**
- **battle hardened, scale**
- **opinionated tools for building apps**
- **user authentication, account management**
- **cloud shell, unix**

# colab

- **free gpu/tpu time**
- **python import**
- **keras mnist demo**



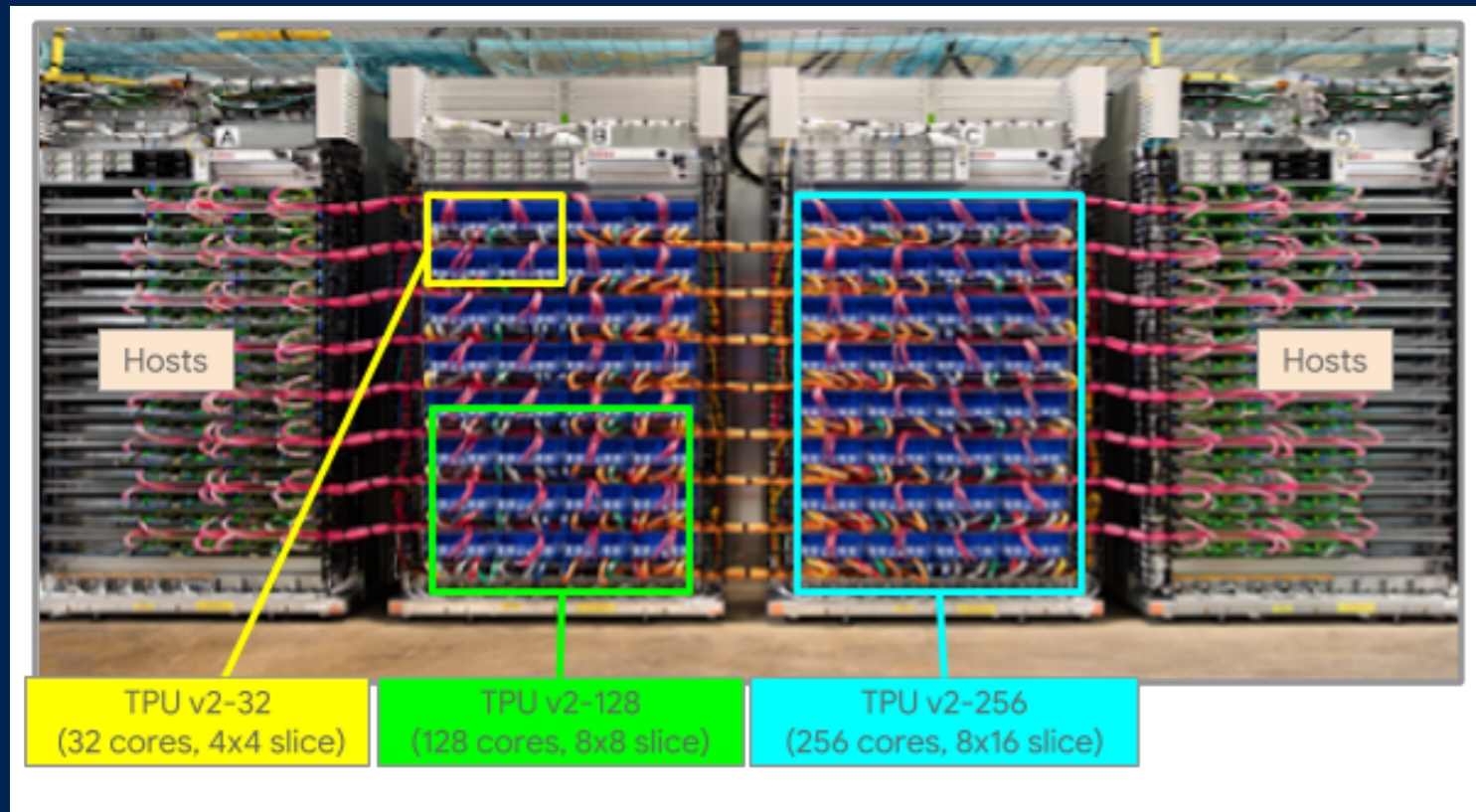
The screenshot shows the Google Colab interface. At the top, there is a dark header with the 'CO' logo on the left and the file name 'Untitled1.ipynb' with a star icon on the right. Below the header is a menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. Underneath the menu bar is a toolbar with icons for adding code cells (+ CODE), text cells (+ TEXT), moving cells up (↑ CELL), and moving cells down (↓ CELL). The main workspace contains a single code cell with a play button icon on the left. The code in the cell is `print("hello world")`. Below the code cell, the output is displayed as `hello world`.

# deep learning ami

- **deploy via marketplace**
- **tensorflow 2 demo**
- **good starting point for experiments**
- **one click installer for many things**

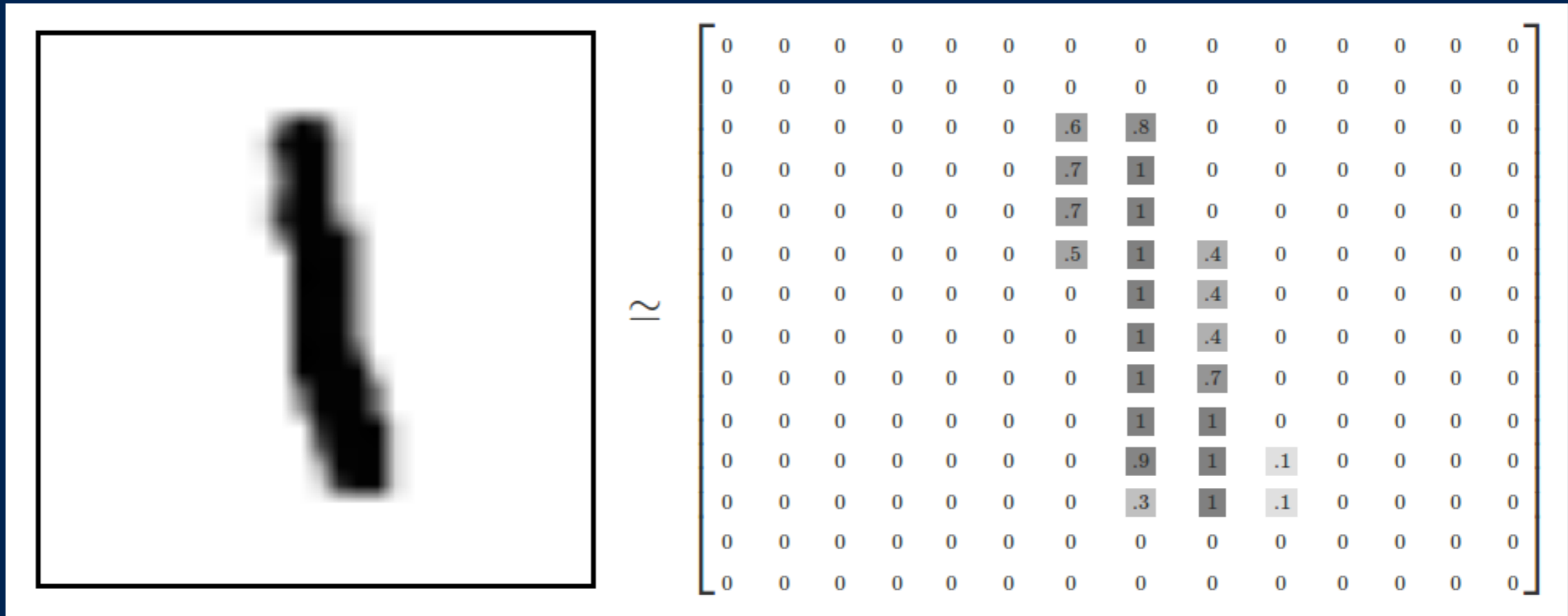


# tensor processing unit

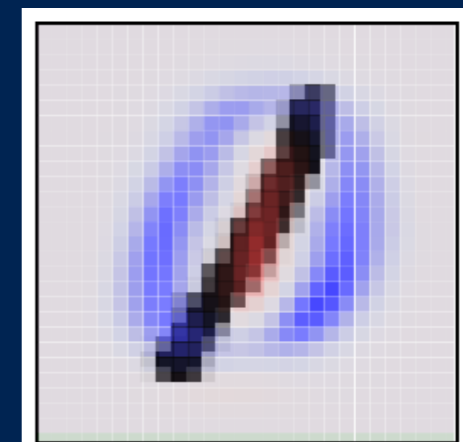


- **google's cloud gpu, pods**
- **int8, bfloat16**
- **init controller, tpu via cloud command**

# mnist: hello world



- **tpu demo**





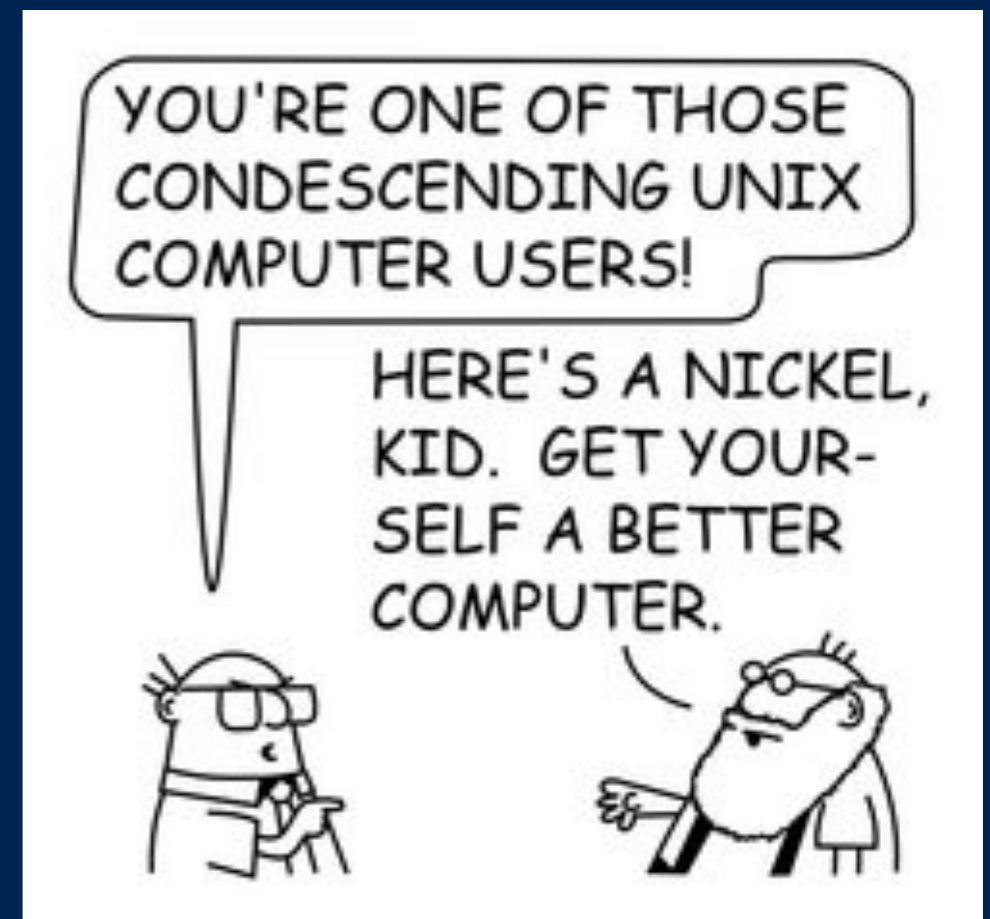
# resnet

- residual networks
- imagenet training
- deploy preemptible tpu job using kubernetes
- ~13 hours to run, \$1.35/hr → <\$20



# errata

- **buckets, gsutil cp / rm**
- **quotas, transfer fees**
- **python 2/3, pip/pip3**
- **ubuntu/debian**
- **sudo tools, PATH**



# gcp tools

- **api, rest/json**
- **tensorboard**
- **bigtable, pub/sub, beam**
- **stackdriver, mobile app**
- **vision, nlp, automl**

# next steps

- **inception, amoebanet, mnasnet**
- **transformer**
- **retinanet, r-cnn**
- **tensorflow/tpu**
- **tensorflow/models**

